laboratory findings, and outcome of the patients. Multilocus Sequencing Typing (MLST) was used to genotype the bacterial isolates to trace the relatedness of the isolates that caused bacteremia in newborn patients. The following clinical information and microbiologic data were collected: demographic characteristics, presence of central venous catheters, invasive diagnostic and therapeutic procedures, total parenteral nutrition (TPN) and intrafat, mechanical ventilation, and previous and current antibiotic exposure.
Results: Forty cases with *A. baumannii* bacteremia were identified. Multidrug resistance was found in only four isolates (10%). The bacteremia-related mortality rate is 7.5%. Most of the patients with A. baumannii infection had prolonged intubation, presence of percutaneous central venous catheter (PCVC) (65%) and longer use of TPN or intrafat (95%). The result of MLST showed diverse genotypes.
Conclusions: *A. baumannii* bacteremia occurred primarily in preterm neonates on TPN and intrafat use and with prolonged intubation in the NICUs. *A. baumannii* bacteremia did not often lead to mortality and multidrug-resistant *A. baumannii* is uncommon in neonatal patients. Decreasing the use of PCVC and intubation time could reduce the infection by *A. baumannii* in preterm neonates.

PS 1-077

RISK FACTOR OF PERITONEAL DIALYSIS-RELATED INFECTION: IMPACT OF DIABETES MELLITUS ON LONG-TERM OUTCOME

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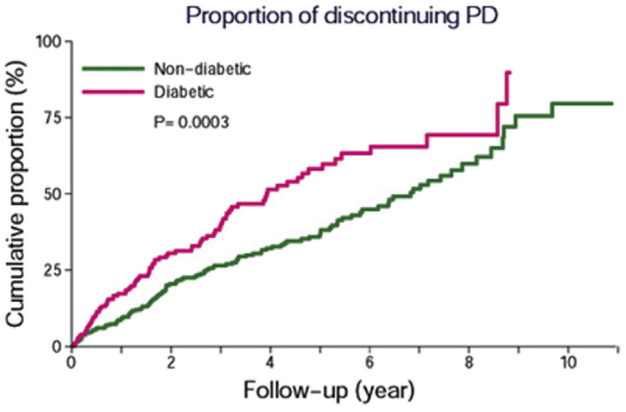
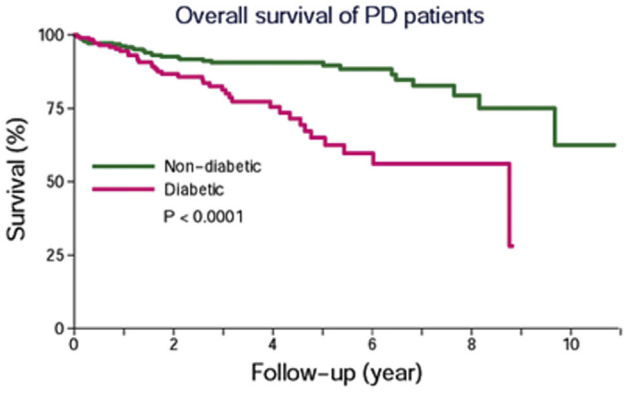
Purpose: Infection including peritonitis is the major complication for patients receiving peritoneal dialysis (PD). PD-related infection remains the leading cause of withdrawing dialysis. Nursing care for patients free from infection is an important issue. This study is conducted to investigate the risk factors and outcome of PD-related infection.





Methods: Data and medical records are obtained from registry database in a tertiary hospital. Clinical factors contributing to PD-related infection or outcome are all record and analyzed with logistic regression model. Outcomes were analyzed by log-rank test and Cox proportional hazard regression model.
Results: A total of 514 patients are enrolled for analysis from 2001 to 2013 consecutively. Diabetes mellitus is the risk factor contributing to PD-related infection in a multivariate regression analysis (odds ratio = 1.79 and 95% confidence interval [CI] = 1.19—2.67, $P = 0.005$). Diabetic patients have higher ratio of PD-related infection (hazard ratio [HR] = 1.83 and 95% CI = 1.43—2.34, $P < 0.001$) and discontinuing PD (HR = 1.68 and 95% CI = 1.27—2.24, $P < 0.001$) than non-diabetic. As comparing with non-diabetic patients, they also have higher mortality rate (HR=2.67 and 95% CI = 1.66—4.3, $P < 0.001$).
Conclusion: Diabetic patients are more prone to PD-related infection than non-diabetic patients. They also have earlier events to discontinue PD. To reduce the infection episode is the critical issue of nursing care in PD patients.

PS 1-078

INVESTIGATION ON NURSE OF KNOWLEDGE AND PROTECTION ADHERENCE OF MULTIPLE DRUG-RESISTANT *ACINETOBACTER BAUMANNII* IN A MEDICAL INTENSIVE CARE UNIT IN CENTRAL TAIWAN

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Purpose: Multiple Drug-resistant Acinetobacter baumannii(MDRAB) is most commonly isolated pathogens in many medical center ICUs. Severe infection could lead to a mortality rate as high as 46—63.9 %. Multiple drug resistant pathogens lead to stern challenges during treatment and cause financial burden. The purpose of this study is to survey on nurse base upon their knowledge of MDRAB and protection adherence.
Methods: This is a descriptive study. A structured questionnaire was used to measure comprehensive knowledge of Acinetobacter baumannii from nurses of medical center in central Taiwan. During the period between Apr 1 2013 and May 31, a total of 136 nurses joined our questionnaire survey. Percentile, t-test, ANOVA and regression analysis were adopted and all data analyses were performed using SPSS 17.0.
Results: There's a positive correlation between comprehensive knowledge of MDRAB and protection compliance. The higher frequency of caring MDRAB infected patients, the better the comprehensive knowledge they are ($p = 0.017$). The compliance of protection and comprehensive knowledge are higher among nurses who had received in-occupation education. The better the comprehensive knowledge is the higher the protection adherence of the nurses. For every 1 point increase in the knowledge of MDRAB, there will be 0.18 point increase in protection adherence.

Table 1 Multiple regression for the Participants' demographic and knowledge of MDRAB($N = 136$).

	Exp(*B*)	SD	*B*	*t*	*p*
(Constants)	94.880	3.147		30.149	.000
Age	.312	2.888	.015	.108	.914
Education level	−1.393	2.729	−.045	−.510	.611
Marital status	2.185	2.524	.088	.866	.388
Department	1.031	1.862	.048	.554	.581
Clinical ladder level	.479	1.351	.056	.354	.724
Years of service	.010	1.432	.001	.007	.994
Care frequency	−2.551	1.050	−.215	−2.429	.017
Related education	−1.739	1.792	−.084	−.970	.334
$R^2 = .082$ $F = .196$					

Table 2 Linear regression of knowledge of MDRAB and protection adherence

	Exp(*B*)	SD	*B*	*p*
(Constants)	2.654	.390		.000
Knowledge	.018	.004	.346	.000

Conclusions: The results show that the comprehensive knowledge of MDRAB and protection adherence is high among our nurses. The protection adherence may be increased by providing an in-occupation education based upon the knowledge of MDRAB. Our study results could provide as a reference for strategies develop in preventing infection.

PS 1-079

DEEPLY SITUATED INFECTION FOCUS SECONDARY TO E. COLI BACTEREMIA — A CASE OF THIGH NECROTIZING FASCIITIS WITH UNUSUAL AND EASILY OVERLOOKED PRESENTATION

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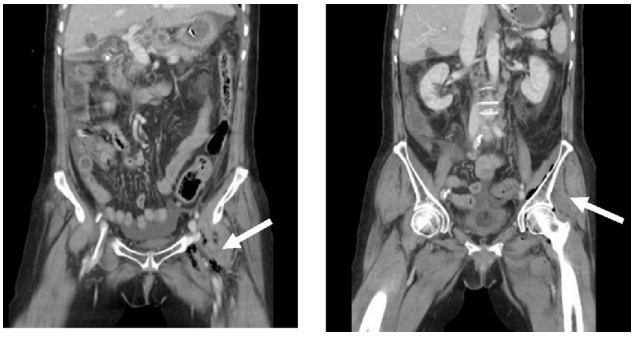
Background: Necrotizing fasciitis is a life-threatening and rapid-progressing soft tissue infection. Early diagnosis with prompt surgical intervention is crucial. However, it is difficult to diagnose deeply situated necrotizing fasciitis. We herein present a case of necrotizing fasciitis which might be secondary to E. coli bacteremia, in order to highlight the challenges of accurate diagnosis and suitable treatment.
Clinical scenario: A 64-year-old woman had past history of ovarian cancer with colon metastasis and received transverse colostomy 6 months ago. She presented with left inguinal and hip pain since 3 days prior to ICU admission. She denied history of recent trauma or falling. Physical examination revealed very mild swelling and local tenderness of left medial thigh. No skin color change was found. Fever and dizziness were noted at emergent room. Her laboratory data revealed pancytopenia. She developed septic shock and acute respiratory failure a few hours later and was admitted to ICU. The pelvic CT scan was arranged and it showed septic arthritis of left hip and necrotizing fasciitis of left medial thigh. For this patient and her family's inclination, she only received medical treatment, and surgical intervention was not performed. Ceftriaxone and Metronidazole were prescribed as antibiotic therapy. Later, the blood cultures yielded E. coli and it was regarded as bacterial translocation from the colon for her colon metastasis. Without CT scan, such a deeply situated necrotizing fasciitis could not be diagnosed. And it was speculated to be related to E. coli bacteremia. This patient's condition soon deteriorated and multi-organ dysfunction ensued about 2 weeks later. Pelvic CT scan: scattered air accumulation in the left hip joint, iliac fossa and medial thigh



Discussion and conclusion: The possible pathogenesis of our patient was enteric bacteria translocation induced by malignancy with colon invasion. From the event we encountered and the literature review, we concluded that when facing the suspicious case of necrotizing fasciitis, in addition to general approach, some robust diagnostic tools such as laboratory findings and diagnostic imaging are useful when the clinical features aren't typical.

PS 1-080

CAPACITANCE SENSOR FOR DETECTING *ESCHERICHIA COLI* IN URINARY TRACT INFECTION DIAGNOSIS

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Purpose: *Escherichia coli* (*E. coli*) is one of the most dangerous pathogens responsible for the majority of food-borne outbreaks and common healthcare-associated infections such as the urinary tract infection. *E. coli* is responsible for up to 80% of the UTIs, causing up to 70% of community-acquired and 50% of hospital-associated UTIs. Conventional bacterial detection method usually involves labor-intensive and time consuming procedures of microbiological culturing followed by confirmation with biochemical or serological tests. In this study, we developed a high-sensitive interdigitated gold microelectrode sensor based on double-layer capacitance to detect *E. coli* in human urine samples for UTI diagnosis.
Methods: The gold interdigitated microelectrode sensor was fabricated on a glass slide by microfabrication. IM-6eX impedance analyzer was used to measure the impedance from 1 Hz to 1 MHz with a sinusoidal signal of 100 mV and THALES software was used for equivalent circuit fitting.
Results: Impedance spectroscopy was measured at different growth intervals after inoculating *E. coli* cells in control urine sample. The impedance spectrum were fitted with electrical equivalent circuit consists of double-layer capacitance (C_{dl}) and solution resistance (R_s). A constant R_s value was obtained, and whereas a significant change in C_{dl} was observed during *E. coli* growth as shown in Figure. *E. coli* formed biofilm structures on sensor surface due to urine as growth medium and this caused the C_{dl} to change during the 12 h growth time. The C_{dl} of the sensor is capable of detecting very low and wide *E. coli* concentrations ranging from 7×10^0 to 7×10^8 cells/ml.

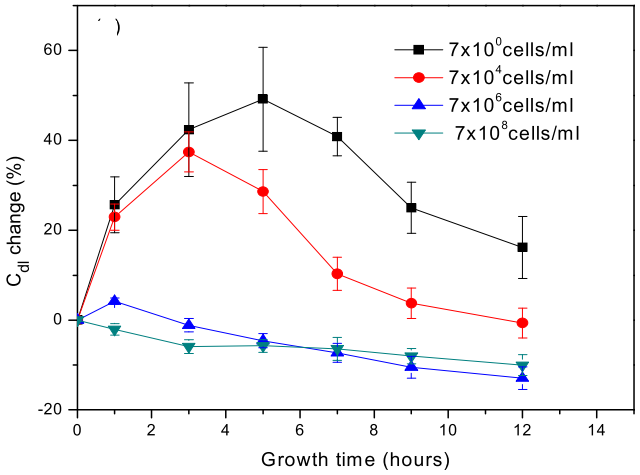

Figure. Change in double-layer capacitance during *E. coli* growth in urine with different cell concentrations.

Conclusions: The interdigitated microelectrode impedance sensor has been proven to be an effective tool for monitoring *E. coli* growth and quantifying *E. coli* in urine for UTI diagnosis.